

WHAT IS CLAIMED IS:

1. An apparatus for applying a label to an object such as a container or cup, the apparatus comprising
- 5 a printer,
- a label applicator coupled to the printer,
- a holder configured to engage the object and move the object relative to the printer and the label applicator, the label applicator configured to apply a label when the object is disposed near the label applicator, and the printer configured to
- 10 print an image on a surface of the object when the object is disposed near the printer, and
- a control system coupling the printer and the label applicator to coordinate the printing of the object such that the label is in a predetermined position relative to the printed image.
- 15 2. The apparatus of claim 1, wherein the label applicator is positioned relative to the printer such that the label is applied to the object at substantially the same time that the image is printed on the surface of the object.
3. The apparatus of claim 1, wherein the control system includes a programmable limit switch coupled to the printer, the programmable limit switch
- 20 being configured to provide output signals establishing the position of the printer.
4. The apparatus of claim 3, wherein the control system further includes an actuator coupled to the label applicator and coupled to the programmable limit switch, the actuator being configured to control the label applicator in response to the output signals from the programmable limit switch.
- 25 5. The apparatus of claim 1, wherein the label applicator includes means for removing the label from a backing prior to application of the label to the object.
6. The apparatus of claim 1, wherein the label applicator includes means for retaining the label for a prescribed period of time and then moving the label
- 30 toward the object.
7. The apparatus of claim 6, wherein the retaining means retains the label with vacuum pressure.

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8. The apparatus of claim 6, wherein the retaining means moves the label toward the object with positive air pressure.

9. The apparatus of claim 8, wherein the retaining means includes a valve means for supplying sufficient air flow to position and move the label.

5 10. The apparatus of claim 1, in which the control system includes a programmable limit switch coupled with the printer for providing a signal to the label applicator of the cycle status of the printer.

10 11. The apparatus of claim 10, wherein the label applicator further includes an actuator coupled to the programmable limit switch for actuating the label applicator in response to the signal from the programmable limit switch.

12. The apparatus of claim 1, wherein the control system is configured to apply the label to the object prior to the completion of printing.

13. The apparatus of claim 1, wherein the printer is configured to omit the printed image from the portion of the object covered by the label.

15 14. A method of applying a label to an object such as a container or a cup carried by a holder, the method comprising the steps of

positioning an object on a holder,

providing a printer,

providing a label applicator that is coupled to the printer,

20 moving the object-carrying holder to a position proximate to both the printer and the label applicator,

applying a label to the object with the label applicator while the object is on the holder, and

25 printing an image on a surface of the object with the printer while the object is on the holder.

15. The method of claim 14, wherein the label applicator and printer have control systems coupled together such that the control system for the printer provides output signals establishing the position of the printer, and the label applying step is coordinated with the position of the printer based on such output
30 signals.

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16. The method of claim 15, wherein the label applicator control system directs the application of one label for each set of output signals delivered by the printer.

17. The method of claim 15, wherein the image printing step
5 including omitting print from the portion of the object where the label has been applied.

18. A machine for printing images on containers and applying labels to the containers, the machine configured to hold the containers, the machine comprising
10 a printer configured to apply an image to each container, and
a label applicator coupled to the printer and configured to apply a label to each container at a prescribed location relative to the image while the image is being applied by the printer.

19. The machine of claim 18, further comprising a control system
15 configured to coordinate the application of the label with the application of the image.

20. The machine of claim 19, wherein the control system includes an encoder coupled to the printer, the encoder being configured to determine a cycle position of the machine.

21. The machine of claim 19, wherein the control system includes a
20 resolver coupled to the printer, the resolver being configured to determine a cycle position of the machine.

22. The machine of claim 19, wherein the control system comprises a programmable limit switch coupled to the printer, the programmable limit switch being configured to determine the cycle position of the printer.

23. The machine of claim 22, wherein the control system further
25 comprises an actuator coupled to the label applicator, the actuator being configured to communicate with the programmable limit switch and coordinate the operation of the label applicator with the operation of the printer.

24. In a machine for printing images on containers, each container
30 being presented by the machine to receive an image, the improvement comprising a label applicator carried on the machine and configured to apply a label to each container as the container is processed by the machine.

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25. The machine of claim 24, further comprising a control system configured to coordinate the application of the label with the application of the image.

26. The machine of claim 25, wherein the control system includes a programmable limit switch configured to determine and report a cycle position of the machine.

27. The machine of claim 26, wherein the control system further includes an actuator configured to communicate with the programmable limit switch and coordinate the application of the label with the receipt of the image by the container.

28. The machine of claim 25, wherein the control system is configured to control the label applicator and the machine such that the label applicator applies a label at substantially the same time that the container is presented by the machine to receive a printed image.

29. The combination of a container printer and a label applicator configured to apply a label at a prescribed area of each container, each container having an axis about which it rotates, the printer comprising a printing head and container feeder configured to present each container to the printing head with each container rotating about its own axis adjacent the printing head, the label applicator being positioned and configured to apply a label to each container during its rotation.

30. The combination of claim 29, further comprising a control system for coordinating the presentation of each container to the printing head with the application of a label.

31. The combination of claim 30, wherein the control system comprises a programmable limit switch configured to determine the cycle status of the container printer and coordinate the operation of the container printer based on the cycle status.

32. The combination of claim 31, wherein the control system further comprises an actuator configured to communicate with the programmable limit switch and direct the operation of the label applicator based on the communication with the programmable limit switch.

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